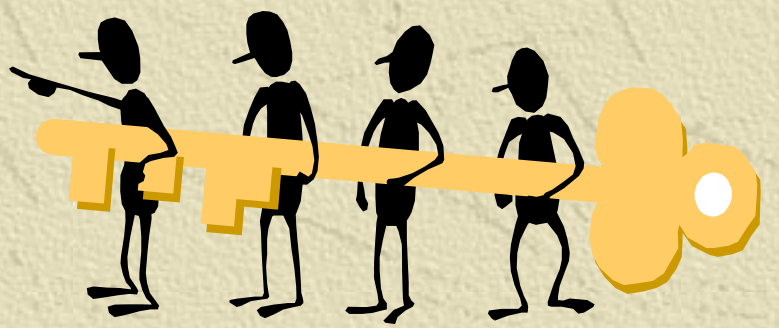


Developing a Successful Data Management Plan for LCTA II

William Sprouse
CEMML/Colorado State University
Rick Weatherford
Fort Stewart, GA

Original LCTA Methods and Objectives

- Implemented in 1989
- Manual published in 1992
- Emphasis on data comparability and standardization, permitting aggregation at the Major Command (MACOM) and Department of Army (DA) levels
- Top down
  - MACOM and DA make decisions

Original LCTA

- Allowed for standardized data collection, storage, and analyses
- Included
  - handheld data logger
  - LCTA Program Manager
  - SQLBase / Quest

Road to LCTA II

- April 1995 FORSCOM sponsored meeting at Fort Pickett
- Discussed issues related to LCTA methods and objectives

Recommendations from Fort Pickett Meeting

- Current (1995) LCTA plot allocation and field methods
  - do not provide adequate data for installation training land decision-making
  - do not provide site-specific information needed for the LRAM and TRI components of ITAM
- Where LCTA is implemented more field plots are needed
  - which may require a streamlining of current methods

In Response to Recommendations from Fort Pickett

- Evaluate and refine LCTA objectives and methodologies
- Workshops were held January and August of 1996
- The evaluation process was termed “LCTA II”

LCTA II is Born

- Installations were directed to develop and use those methods deemed most appropriate to their local needs
- The main purpose of LCTA II
  - provide information to support training
  - additional information for natural resources management is important but is a benefit rather than the emphasis of LCTA II
- Bottom up
  - installation makes the decisions

LCTA II

- Standardized software/hardware no longer possible
  - different methods
  - different data structures
  - different needs

Factors of a Successful LCTA II Program

- Development of management and monitoring objectives and goals
- Sampling design and methods
- Data management plan
  - often overlooked

Cost of Collecting Data - Simple Example

- 2 field crew members
- 6 months (1040 hrs)
- $12/hr
- $24,960

- Can you justify this cost?

Successful LCTA II Data Management Plan Must…

- Provide for the storage of data
- Store the data in a manner that makes the data…
  - secure
  - easy to maintain
  - and easy to use
- In almost all cases a database management system (DBMS) is the best choice

Before you Begin, Ask Yourself…

- What is my current means of collecting data?
- Will my methods change over time?
- What do I need now?
- What can I wait for?

Can You …

- Correct data easily
- Find data quickly
- Summarize data quickly
- Secure you data
- Share your data easily

Where is your data?

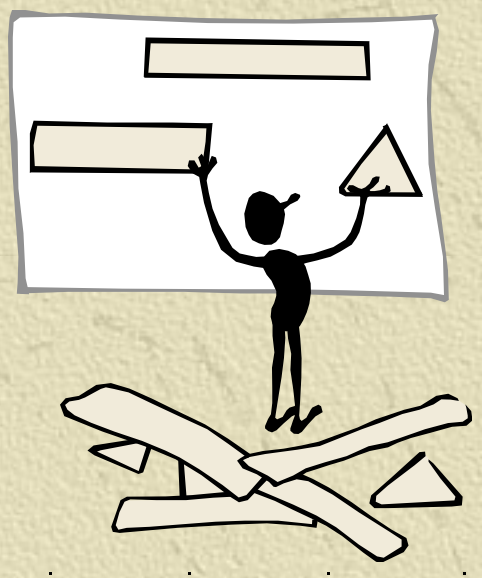
- Diskette
- File cabinet
- Spreadsheet
- Database
- ?????
- Have you lost data?

Elements of a Data Management Plan

- Recording data
- Data entry
- Storing data
- Checking/Correcting data (QA/QC)
- Analyzing data
- Presenting data

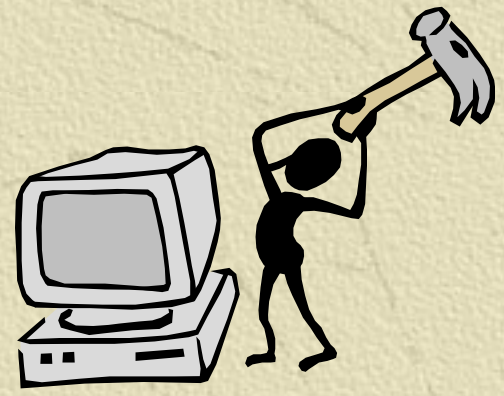
Recording Data

- Data collection
  - computers are nice but not necessary
  - recommend not using computers if your methods are not “set in stone”



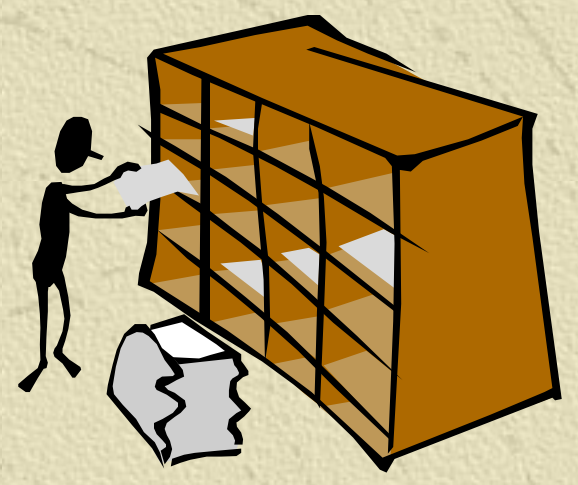
Data Entry

- Using database forms can speed the process and reduce data entry errors
- Data checking and validation in a database
  - data types
  - allowable values
  - look-up tables



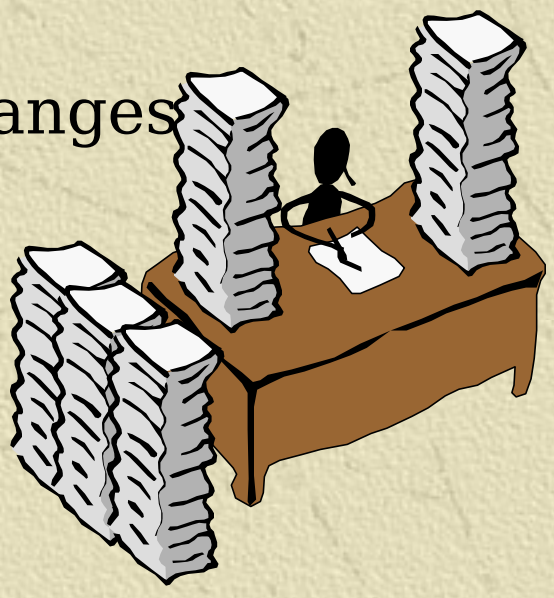
Storing Data

- Database has greater capacity
- Database is easier to share
- Database reduces duplication
- Security
  - password protection
  - user privileges
  - system privileges
- Backup
  - on-site and off-site



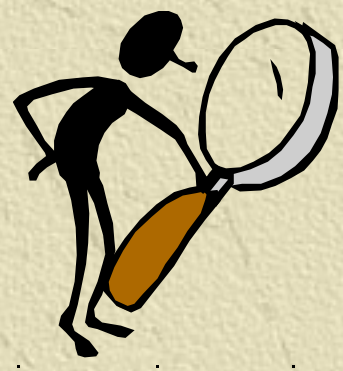
Checking/Correcting Data (QA/QC)

- Searching and data retrieval
  - missing values
  - unknown values
- Data checking and validation
  - data types
  - allowable values
- Database allows for global changes



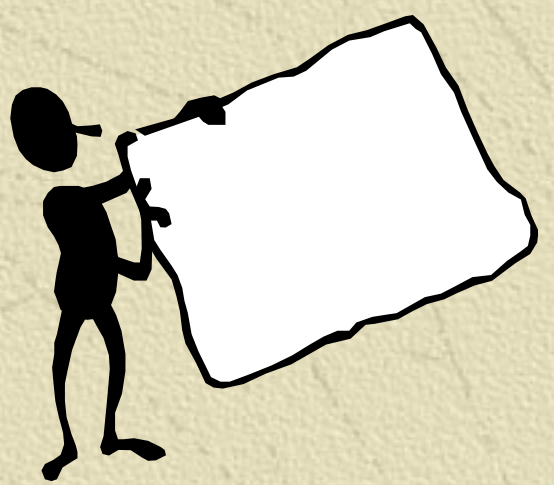
Analyzing Data

- You don’t need a “Big Button” program
- Use the database to summarize data for output
  - able to look at dataset from more than one perspective
- Use other programs to analyze data if needed
  - spreadsheets
  - statistical packages



Presenting Data

- Know your audience
- Database allows same data to be formatted many ways
- Use other programs
  - presentation program
  - spreadsheet



Real World Example

- Fort Stewart
  - Rick Weatherford
  - Drew Brown
- Used LCTA technical support contract to develop database for Fort Stewart LCTA II

Fort Stewart - Before the Database

- Utilized Excel spreadsheets
  - very large and cumbersome
- Some functions required incorporating an extremely large plant list in the spreadsheet several times
- Some analyses required they maintain 3 different spreadsheets
  - which meant entering in some data up to 3 times
- Data entry errors
  - wrong values
  - wrong format
- Data was first recorded on paper
  - for many of their plots this was the only record of the survey

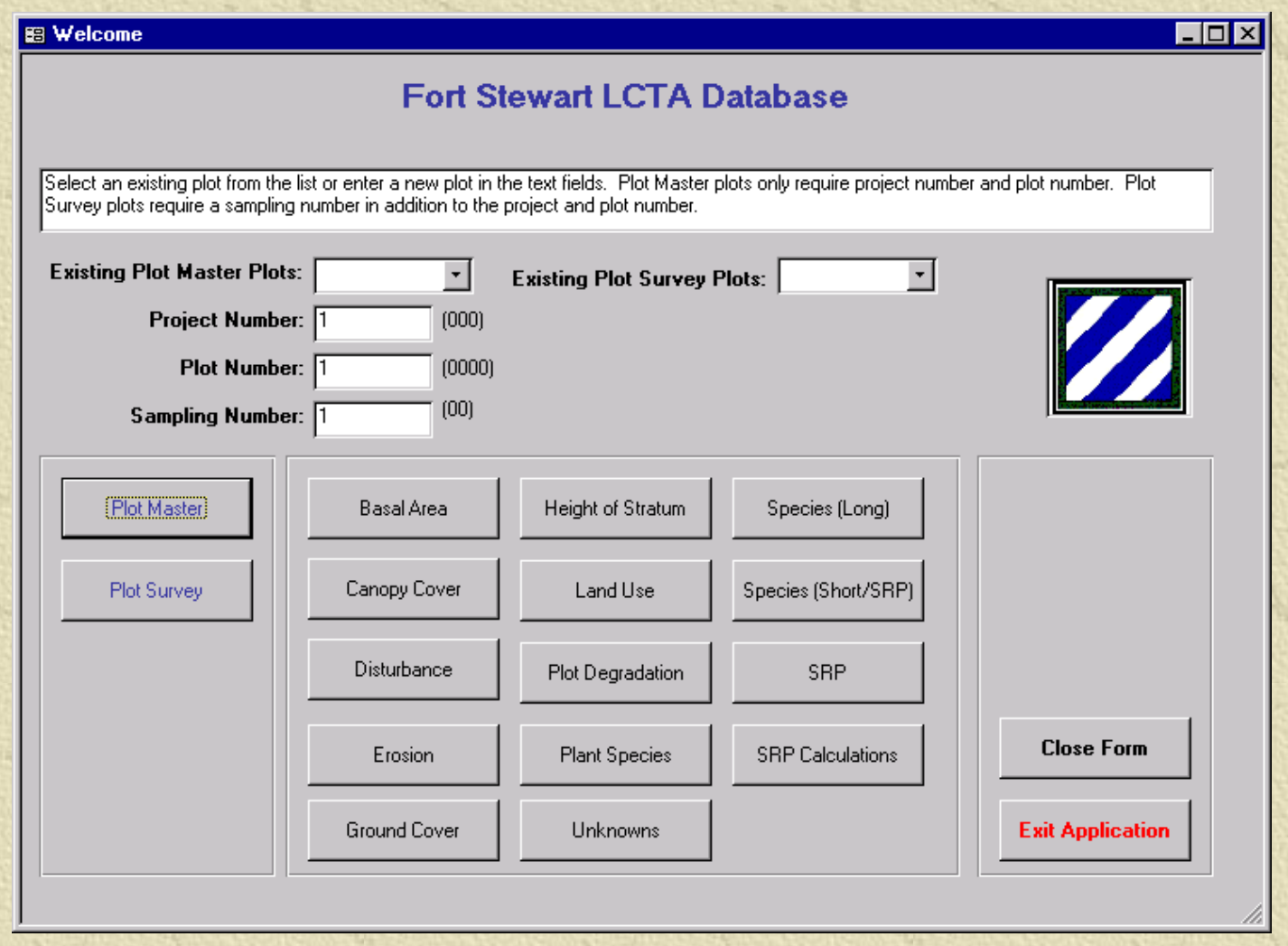
Fort Stewart - After the Database

- The data is easy to manage
- All of the data is contained within one database file
  - only needs to be entered in the database once
- Stored on one network accessible computer
  - multiple user supported
- The database checks for data accuracy
  - data type
  - required fields
  - domain tables restrict allowable values
  - list boxes allow for easy data entry
- Default values allow for quick data entry

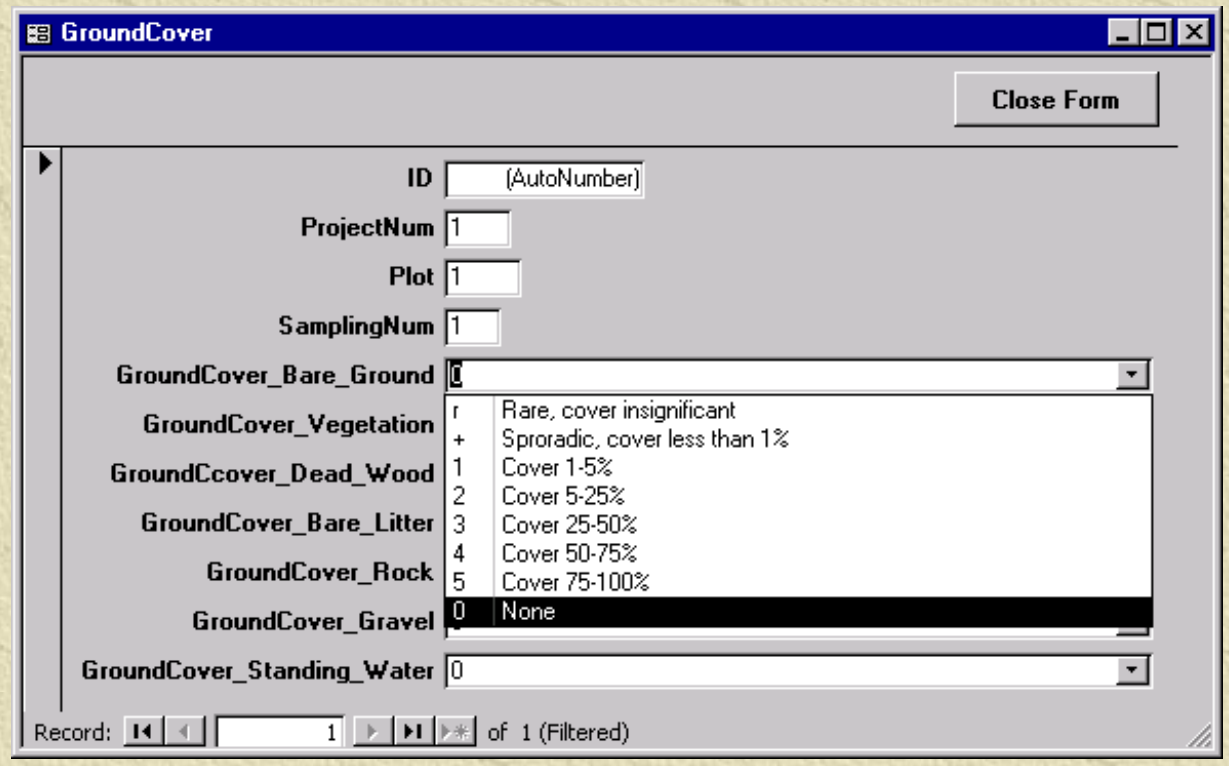
Fort Stewart - After the Database (continued)

- Data can be entered directly into the database in the field
- No need for paper forms
- Easier to store
- Easier to back up
- Reports can be generated if paper copies are desired

Fort Stewart - Main Form



Fort Stewart - Ground Cover Form



Will the computer solve all of your problems?

Operation Phoenix

- Australian Air Force
- Virtual reality simulators have assumed a larger role in helicopter combat training
- Programmers have gone to great lengths to increase the realism of the their scenarios

Operation Phoenix

- This includes detailed landscapes and -- in the case of the Northern Territory's Operation Phoenix -- herds of kangaroos (since groups of disturbed animals might well give away a helicopters position)

Operation Phoenix

- Defense Science and Technology Organization
  - Land Operations/Simulations Division
- Instructed developers to model the local marsupials' movements and reaction to helicopters

Operation Phoenix

- Being efficient programmers, they just re-appropriated some code originally used to model infantry detachments reactions under the same stimuli
- Changed the mapped icon from a soldier to a kangaroo
- Increased the figures' speed of movement

Operation Phoenix

Eager to demonstrate their flying skills for some visiting American pilots, the hotshot Aussies "buzzed" the virtual kangaroos in low flight during a simulation. The kangaroos scattered, as predicted, and the Americans nodded appreciatively . . .

Operation Phoenix

...and then did a double-take as the kangaroos reappeared from behind a hill and launched a barrage of stinger missiles at the hapless helicopter. (Apparently the programmers had forgotten the remove "that" part of the infantry coding).

Questions?